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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,791	01/13/2006	Tomoyuki Takada	SHIGA3.008APC	3346

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EXAMINER	
PIERY, MICHAEL T	

ART UNIT	PAPER NUMBER
1742	

NOTIFICATION DATE	DELIVERY MODE
04/05/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/564,791	TAKADA ET AL.	
	Examiner	Art Unit	
	MICHAEL T. PIERY	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6 and 7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 22 April 2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in Graham **v.** John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 7,120,342) in view of Mauk et al. (6,166,094).

Regarding claim 1, Chang teaches forming a foamable composition into a sheath shape having a thickness of 1 micrometer to 10 mm (column 6, lines 59-64), the composition having an acid generator that generates acid due to the action of an active energy beam (column 2, line 1 - sulfonium salt) and a polymeric decomposing foamable functional group that decomposes and eliminates a low boiling point substance by reacting with the acid (column 3, lines 45-55 – urethane acrylate oligomer), irradiating the composition and foaming the composition (column 9, lines 36-43) wherein the foamable functional group is a urethane group (column 3, lines 45-55). Chang does not explicitly teach the composition is formed into a sheet. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang to form the composition into a sheet rather than a sheath since it has been held that change in shape is an obvious choice one in the art would have found obvious (MPEP 2144.04). Chang does not explicitly teach the foamable functional group is a tert-butyl group. Mauk, however, teaches common foamable functional groups include tert-butyl groups (column 13, line 16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang to use a tert-butyl group because it has been held that selection of a known material (tert-butyl foamable functional group) based on its art recognized suitability for its intended purpose (foaming) is prima facie obvious (MPEP 2144.07).

Regarding claim 3, Chang teaches the sheet is heated as necessary (in the instant case no heating is necessary) and irradiated (column 9, lines 36-43).

Regarding claim 7, Chang teaches the foamable composition is formed into a thickness of 1 to 100 micrometers (column 6, lines 59-64).

4. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 7,120,342) in view of Mauk et al. (6,166,094), as applied to claim 1 above, and further in view of Hiroshi et al. (JP 08-325401, citations refer to attached machine translation).

Regarding claim 4, Chang does not explicitly teach the sheet is formed by extrusion. However, Hiroshi teaches irradiating to foam a sheet where the sheet was formed using extrusion (paragraph 0032). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang because extrusion is a known efficient and reliable method to form a sheet.

Regarding claim 6, Chang does not explicitly teach the sheet is foamed by heating after irradiating. However, Hiroshi teaches it is known to foam a sheet by heating after irradiating (paragraph 0077). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the process of Chang to include the heating step of Hiroshi because heating enhances the foaming of the sheet.

Response to Arguments

Applicant's arguments filed 6 April 2010 have been fully considered but they are not persuasive.

Applicant argues that the presence of a tert-butyl group results in unexpected properties which would rebut a prima facie showing of obviousness. The examiner disagrees. The examples cited by applicant (specification page 78) compare a combination including a decomposing group to a combination with a non-decomposing group. It is not the presence of a tert-butyl group that creates the reflectance difference, rather it is the presence of a decomposing compound generally which creates the reflectance difference. Chang teaches the presence of a decomposing group (urethane acrylate oligomer), and it would have been obvious to use a tert-butyl group in Chang because it is a suitable decomposing group, as taught by Mauk.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. PIERY whose telephone number is (571)270-5047. The examiner can normally be reached on M-Th 8:30-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael T Piery/
Examiner, Art Unit 1742

/Monica A Huson/
Primary Examiner, Art Unit 1742